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GB A 2123199 GB 1553798 GB 0477979
US 4274686 US 4226486 US 4145097
US 3866991 US 3830554 US 3781074
US 3765739
Note: GB 1553798 and US 4145097 are equivalent;

(58) Field of search
A4L
Selected US specifications from IPC sub-class A47B

(54) Improvements in furniture

(57) A computer desk providing a clear top workspace which is pivotal upwardly with a monitor compartment supported thereunder and brought to a viewing positions by lifting the worktop with a computer terminal support being moved thereat to a user accessible position, the computer terminal and monitor being stored out of the way when the worktop is lowered.

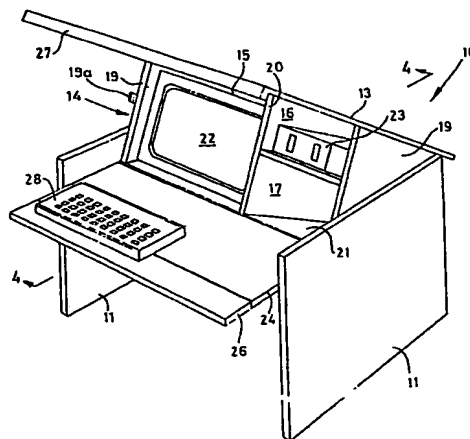


FIG. 3

UDC 671.7.004

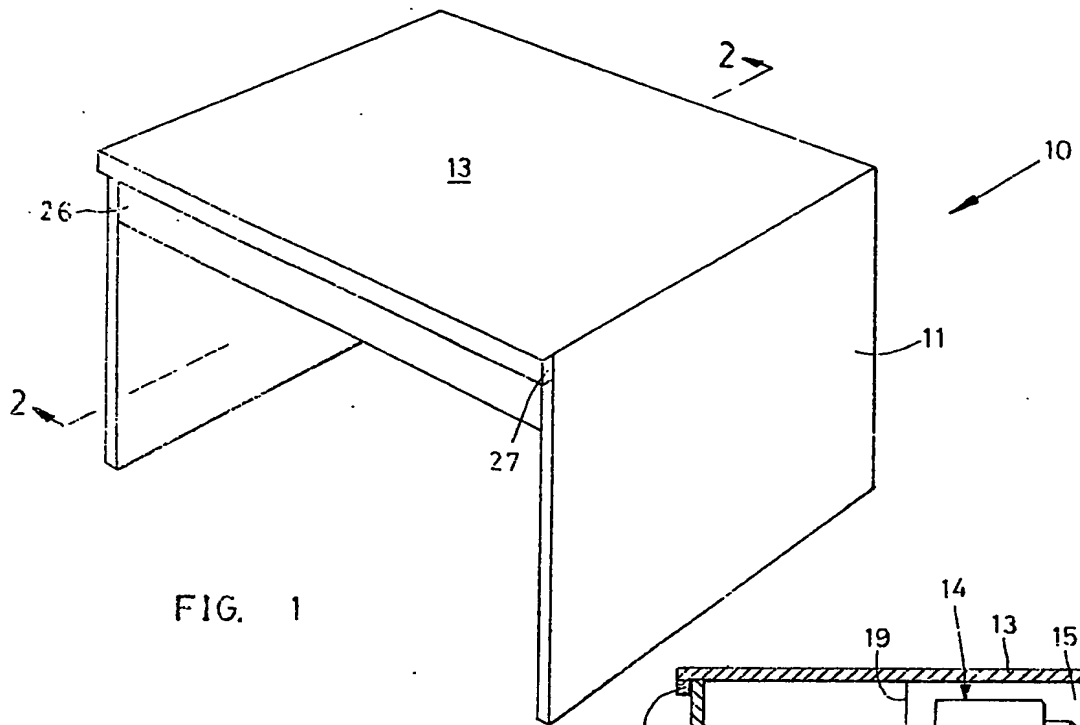


FIG. 1

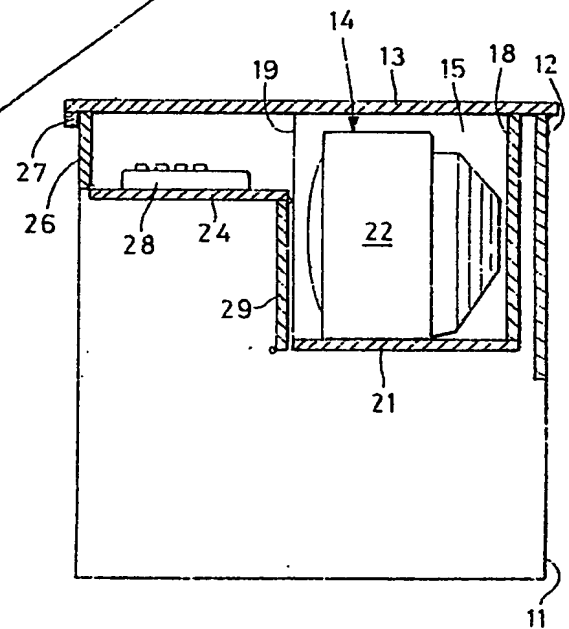


FIG. 2

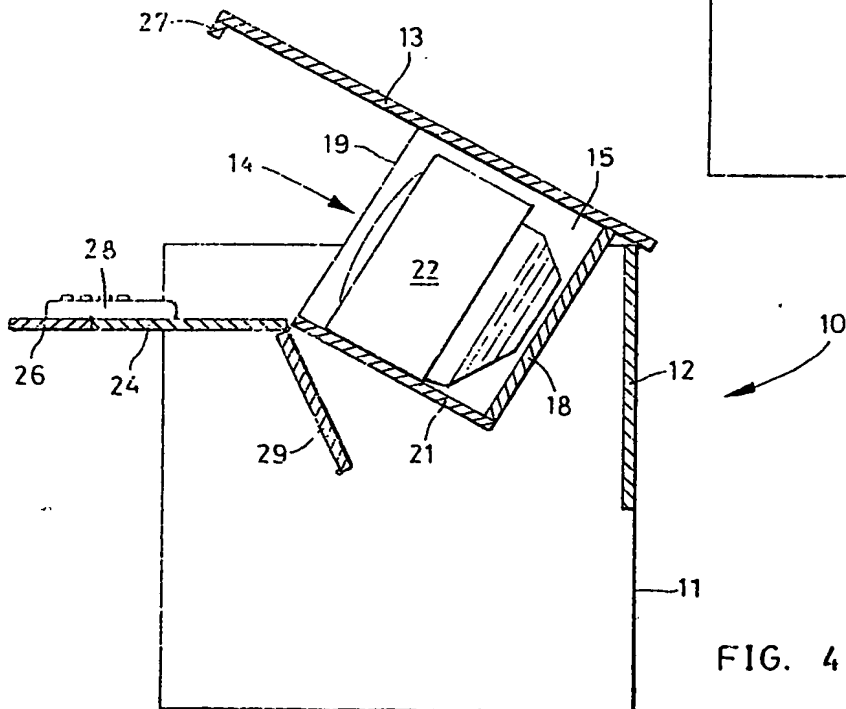


FIG. 4

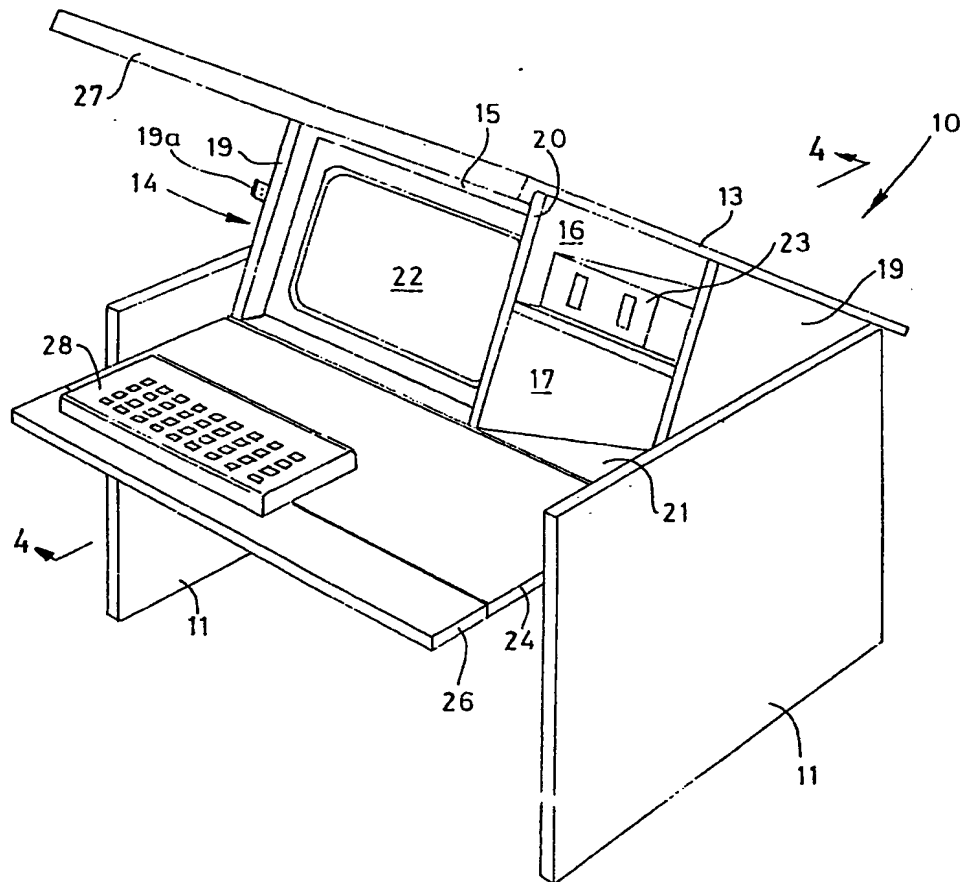


FIG. 3

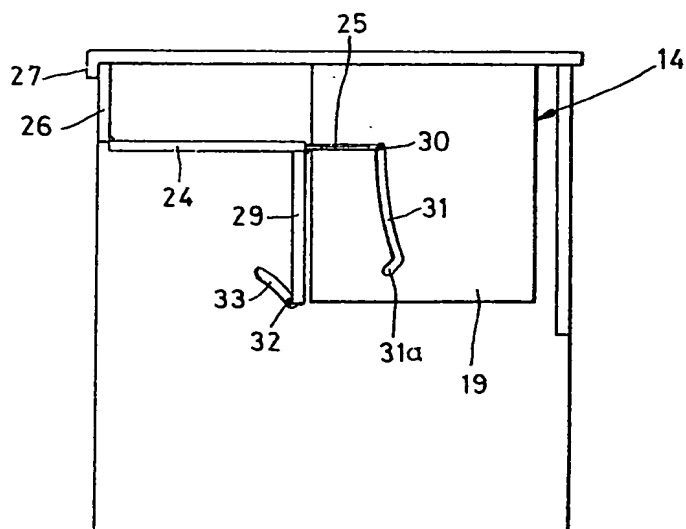


FIG. 5

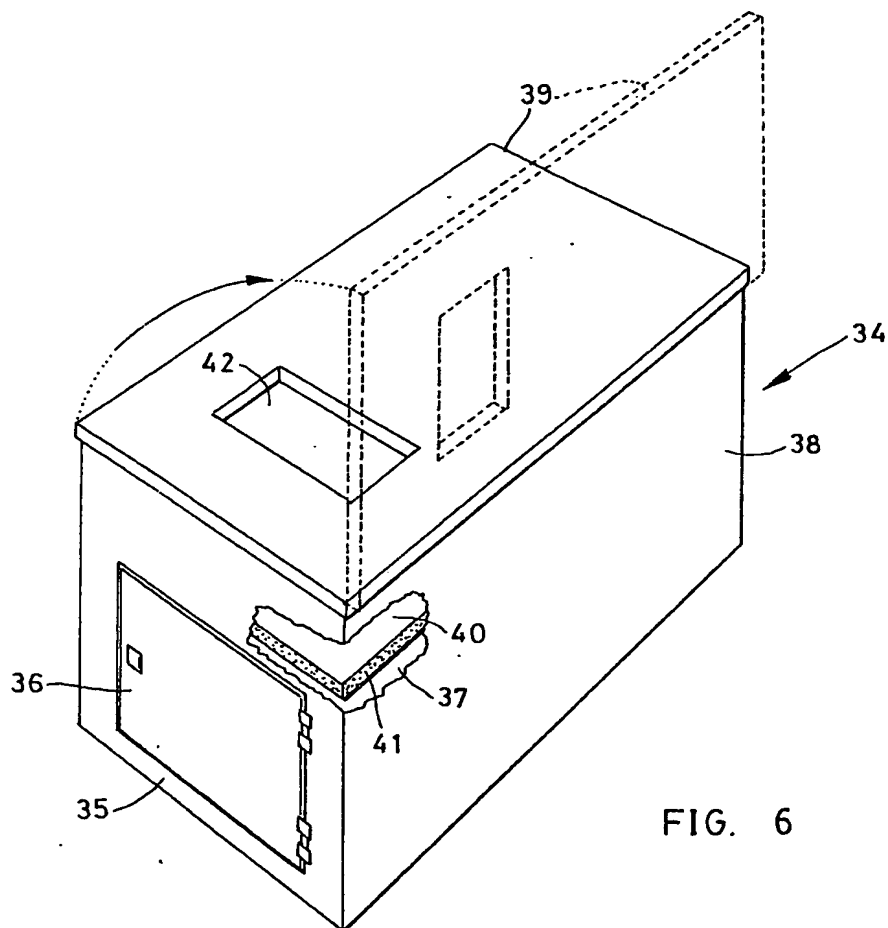


FIG. 6

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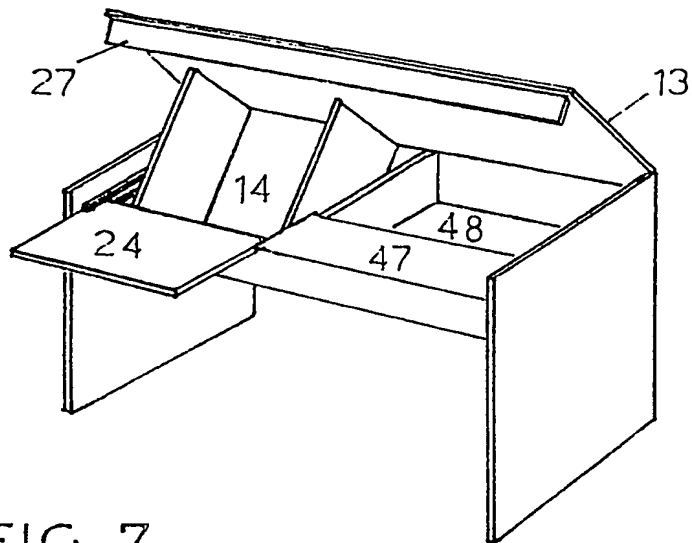


FIG 7

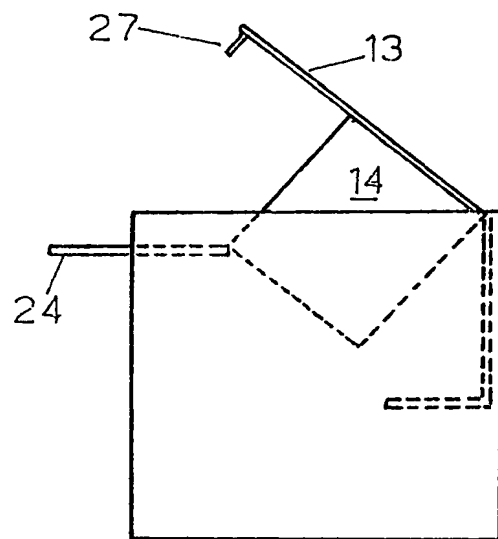


FIG 8

FIG 9

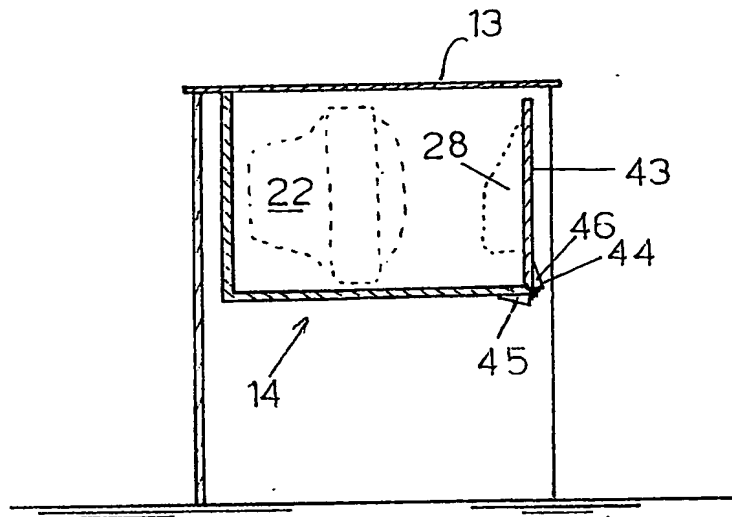
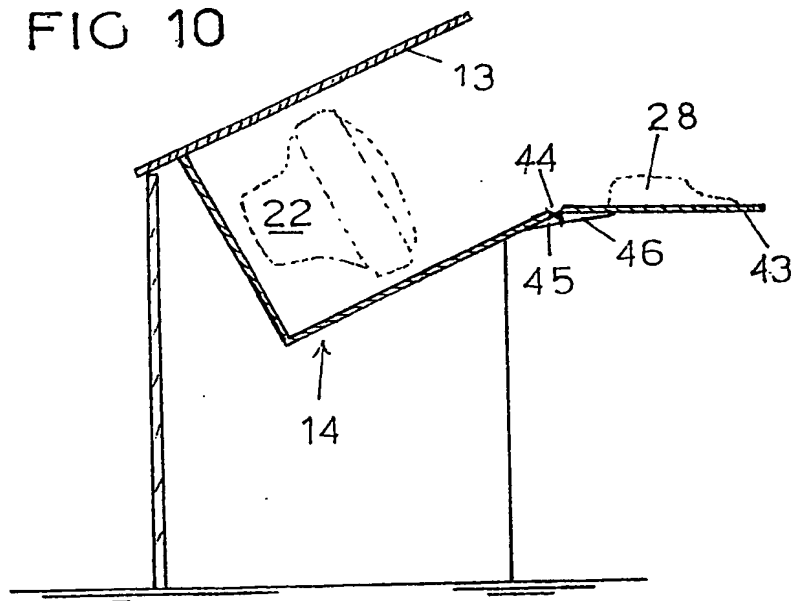


FIG 10



SPECIFICATION

Improvements in furniture

5 *Field of the invention*

This invention relates to improvements in furniture. The invention is particularly directed to a desk which can accommodate personal or micro-computers and their associated equipment.

10 *Background art*

Most students and other personal computer users simply place their computers and associated peripheral devices (e.g. monitors, data cassettes or disk drives, printers, modems, software and documentation) on a desk. This leaves little, if any, area to work on, and the equipment is not secure when not in use.

Security cabinets for personal computers are available (e.g. produced by Sylex Distributors Pty. Ltd. Sydney) but these do not provide secure storage for the monitors and they have little, if any, usable working space when the computer is secured away,

Objects of the invention

It is an object of the present invention to provide a desk for computer equipment where the desk has an unobstructed worktop when the computer is not in use.

It is a preferred object to provide a desk where the computer can be raised to a suitable working position when required.

It is a further preferred object to provide a desk where the computer and any peripheral equipment can be securely stored when not in use.

It is a still further preferred object to provide a desk where all wiring can be provided integrally to conceal and protect the cables and connections between the various pieces of equipment.

It is a still further preferred object to protect the computer equipment from dust when not in use.

Other preferred objects of the present invention will become apparent from the following description.

Brief outline of the invention

In one aspect the present invention resides in a desk including:

- a frame assembly;
- 45 a first worktop hinged at one side to the frame assembly; and
- storage means supported under the worktop; so arranged that in its lowered position, the worktop provides a workspace thereon and equipment is stored in the storage means and in its raised position, access is provided to the equipment stored in the storage means.

Preferably the worktop can be secured and/or locked in its raised and lowered positions.

55 Preferably the frame assembly includes side panels and a rear panel which enclose the storage means when the worktop is in its lowered position. The side and/or rear panels may extend to the floor or the desk may be supported on legs on a suitable stand.

60 Preferably the storage means includes one or more compartments e.g. for a computer monitor, data cassette or disk drive, computer disks or diskettes or other suitable equipment and/or software storage.

Preferably the keyboard is supported on a shelf which is preferably advanced towards the user as the

worktop is raised. The shelf may have a central horizontal portion hingedly connected to a rear, substantially vertical portion which encloses the lower front portion of the storage means when the worktop is in its lowered position, and a front, substantially vertical portion which engages the forward edge of the worktop to enclose the upper front portion of the storage means.

70 The shelf may be connected to the storage means on the worktop by levers, linkages, arms with pins in tracks, or other suitable means to advance the shelf as the worktop is raised.

Brief description of the drawings

To enable the invention to be fully understood, a preferred embodiment will now be described with reference to the accompanying drawings, in which:

FIG. 1 is a perspective view of the desk with the worktop in the closed position;

85 FIG. 2 is a sectional side view taken on line 2-2 on FIG. 1;

FIG. 3 is a perspective view of the desk with the worktop raised;

FIG. 4 is a sectional side view taken on line 4-4 on FIG. 3;

90 FIG. 5 is a side view of the mechanism for advancing and retracting the keyboard shelf as the worktop is raised or lowered; and

FIG. 6 is a perspective view of a printer cabinet which can be used with the desk, part being shown broken-away and the lid being shown in the raised position in dashed lines;

FIG. 7 is a perspective view of an alternate embodiment providing extra storage for peripherals;

FIG. 8 is sectional view of the desk of FIG. 7;

100 FIGS. 9 and 10 are sectional views of a further embodiment of the invention.

Description of preferred embodiments

Referring now to FIGS. 1 and 2, the desk 10 has a frame with a pair of side panels 11, a rear panel 12 and a worktop 13 hinged to the rear panel 12 along its rear edge.

Storage means 14, comprising a plurality of compartments 15, 16, 17 (see FIG. 3) are provided on the underside of the worktop 13, the compartments being defined by a rear wall 18, side panels 19, dividing wall 20 and floor 21.

As shown in FIG. 3, a monitor 22 is provided in the larger compartment 15, a disk drive 23 in upper side compartment 16 and diskette boxes (not shown) in lower side compartment 17.

115 A shelf 24 is supported on a pair of horizontal arms 25 carried in runners (not shown) on the inner faces of the side panels 11. A front panel 26 is hingedly mounted on the forward edge of the shelf 24.

120 When the worktop 13 is lowered, the panel 26 is substantially vertical and engaged behind a locking strip 27 provided along the front edge of the worktop, while the panel 26 is lowered to be co-planar with the shelf 24, to support a keyboard 28, when the worktop 13 is raised.

A rear panel 29 is hingedly connected to the rear edge of the shelf 24.

When the worktop is closed, the rear panel 29 is substantially vertical and closes the compartments 15-17 the panel being closely adjacent the forward

edges of the walls 19, 20. When the worktop 13 is raised, the shelf 24 is moved forward by pins 30 on the arms 25 which engage curved tracks 31 in the outer faces of the side walls 19 of the storage means. The upper edge of the panel 29 is pulled forward and the lower edge travels in an area defined by pins 32 on the panel 29 which are engaged in tracks 33 in the inner faces of the adjacent side panels 11 of the frame.

When the worktop 13 is in its lowered position (e.g. in FIGS. 1 and 2), a key-operated latch (not shown) may engage the worktop to prevent it being raised and so prevent unauthorized access to the equipment in the storage means 14. (Alternatively, the latch may engage the shelf 24, which engages over lugs 19a on the side walls 19 (and dividing wall 20) to prevent the worktop being raised when the shelf is retracted, as shown in FIG. 2).

When the worktop 13 is in its raised position, the pins 30 on the arms 25 may engage in recesses 31a in the tracks 31 to secure the worktop in that position.

It will be readily apparent to the skilled addressee that the worktop provides a clear working surface when closed, with full security for the equipment in the storage means 14, while ready access to the equipment is available when the worktop is raised.

A security cabinet 34 may be provided e.g. for a printer (not shown), the cabinet being securely fixed, or releasable from, the desk 10.

The cabinet 34 has a front wall 35 with a lockable door 36 providing access to a lower storage compartment 37, side walls 38, a rear wall (not shown) and a lockable hinged lid 39 providing access to the printer compartment 40 (which has a floor 41). A window 42 in the lid 39 enables the operator to read the material being printed on the printer, while the hinged lid enables access to the printer (e.g. to remove printed sheets or to supply fresh paper).

To reduce the noise from the printer, the cabinet may be lined with sound absorbent material.

The desk 10 and the cabinet 34 can be provided either fully assembled or completely-knocked-down (CKD) for do-it-yourself (DIY) assembly.

Preferably all electrical wiring and computer cables and connections are provided within the desk and cabinet so that these are not disturbed when the equipment is stored and not in use.

The desk may be mounted on suitable legs or a stand and alternative mechanisms can be provided to advance and retract the keyboard shelf 24 as the worktop 13 is raised and lowered.

The desk has a pleasing aesthetic appearance and may be manufactured in a wide range of materials and finishes. Because of its configuration it uses very little floor space.

To assist the user to raise and lower the worktop 13, it may be counterbalanced e.g. by a torsion bar, pneumatic or hydraulic struts, a spring-operated linkage or other suitable means.

In the FIGS. 7 and 8, the desk top 13 is shown raised to move the monitor compartment 14 into a viewing position. The shelf 24 is for the support of a computer terminal, keyboard, PC, etc. as set out above and is slidably movable horizontally between a storage position and a user accessible position in a similar manner to that set out above between edge runners of

a suitable form. The desk of this embodiment is elongated to provide additional storage in a compartment 48 with a work surface 47 to accommodate peripheral equipment. This compartment may be suitably sized and sound-proofed to accommodate a printer. The desk might be boxed in at this point to provide a tier of drawers for program storage, etc. As in the earlier embodiments, the desk top and monitor may be counter balanced by a torsion bar mechanism or a compensating spring balanced hinge mechanism as are commonly employed with motor vehicle bonnets, etc. In order to secure the top in position, any suitable locking mechanism might be employed. In FIG. 8, it will be seen that the desk components may be dimensioned so that shelf 24 may be moved in under compartment 14 so as to take the desk top weight thereon. As in the earlier embodiments, the monitor compartment may be boxed in so as to provide security from being knocked when in the storage position beneath the desk, with a kick panel being disposed in front of compartment 14.

In FIGS. 9 and 10, the monitor 22 is mounted in compartment 13, beneath worktop 13, which is movable pivotally about its rear edge similarly to the other embodiments. The keyboard 28 is mounted upon an angularly displaced support 43 about pivot 44 to be moved to a horizontal situation whereat the monitor may be viewed and the keyboard accessed. When folded up, the top may be lowered so as to be used as a flat work surface. So as to support the keyboard horizontally, the support therefore, shelf 43, may be provided with a suitable stop mechanism such as the abutments 45 and 46 disposed along the back of the hinge so as to limit its angular movement.

Alternately, the hinge plates and hinge pin/pivot line may be designed so as to limit the plate movement beyond a predetermined angular displacement in the known manner. When folded, the keyboard support becomes a front panel to the desk so as to provide security for the monitor by obscuring it behind the raised shelf 43.

As stated above, the embodiment described is by way of an illustrative example only, and various changes and modifications may be made without departing from the present invention.

CLAIMS

1. A desk including:
 - a frame assembly;
 - a first worktop hinged at one side to the frame

assembly; and
storage means supported under the worktop; so arranged that in its lowered position, the worktop provides a workspace thereon and equipment is stored in the storage means and in its raised position, access is provided to the equipment stored in the storage means.

2. A desk as claimed in claim 1 wherein in the raised position a second worktop is accessible in front of the monitor storage means.

3. A desk as claimed in claim 2 wherein raising the first worktop permits the second worktop to be moved from a storage position to a working position.

4. A desk as claimed in claim 3 wherein the second worktop in its working position effects the locking of the worktop in its raised position.

5. A desk as claimed in claim 4 wherein locking is effected by means of a pin secured to the second worktop moving in a groove secured to the first worktop, said groove having an endstop bearing downwardly on the pin.
6. A desk as claimed in claim 4 wherein the pin and groove interact to cause the second worktop to be moved to an accessible position as the first worktop is raised.
7. A desk as claimed in claim 3 wherein in the raised position of the first worktop, the second worktop may be angularly displaced from a storage position to a horizontal working position.
8. A desk as claimed in claim 7 wherein the second worktop is pivotally mounted across an opening to the storage means and in its storage position lies across the opening.
9. A computer user's desk for containment of a computer terminal and a monitor wherein:
- the monitor is stored in an angularly movable storage compartment pivotally mounted for movement between a storage position and a viewing position;
- the computer terminal is mounted to a support means which is movable between a storage position and a user accessible position; and
- the storage compartment is disposed beneath and attached to the desk top which is horizontally disposed in the storage position and angled upwardly in the viewing position.
10. A computer user's desk as claimed in claim 9 wherein the support means and storage compartment are interlinked so as to move together to their viewing and user accessible positions by a pin secured to the support means engaged in a groove secured to the storage compartment, the groove providing an end stop at which the end stop bears down upon the pin to support the storage compartment in its viewing position.
11. A computer user's desk as claimed in claim 9 wherein at the angled upward position of the desk top, the support means is angularly movable about a pivot aligned along an edge of the storage compartment between a position across the front of the monitor and a horizontal user accessible position.